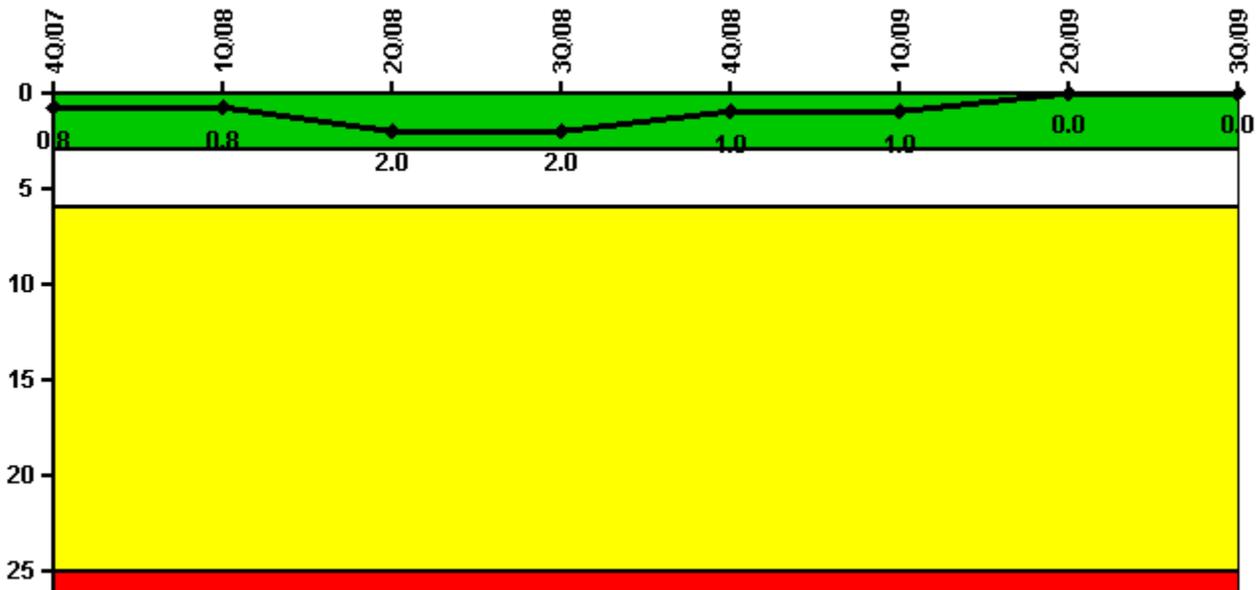


# Palo Verde 2

## 3Q/2009 Performance Indicators

Licensee's General Comments: During an update of reliability record demand estimates to take effect in the 4th quarter 2009, the station discovered that the manner of input for reliability record demand estimates revised in the 4th quarter 2008 inadvertently changed historical high pressure safety injection and residual heat removal reliability index reported values reported since 2006. The corrected values were submitted in an October 2009 change report. The differences between the results were minor and did not result in a color change. Corresponding comments in 4th Quarter 2008 were revised for clarity and an unnecessary comment put in 3rd Quarter 2008 was deleted.

### Unplanned Scrams per 7000 Critical Hrs



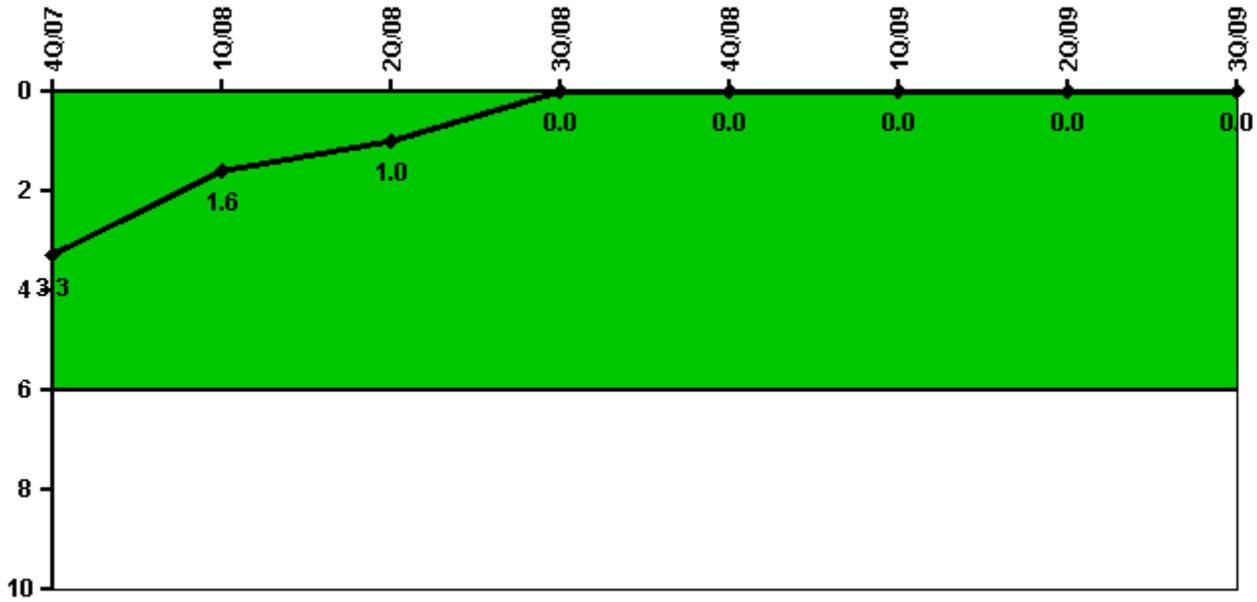
Thresholds: White > 3.0 Yellow > 6.0 Red > 25.0

### Notes

Unplanned Scrams per 7000 Critical Hrs	4Q/07	1Q/08	2Q/08	3Q/08	4Q/08	1Q/09	2Q/09	3Q/09
Unplanned scrams	1.0	0	1.0	0	0	0	0	0
Critical hours	2069.1	2112.0	687.6	2208.0	1673.3	2160.0	2184.0	2208.0
Indicator value	0.8	0.8	2.0	2.0	1.0	1.0	0	0

Licensee Comments: none

## Unplanned Power Changes per 7000 Critical Hrs



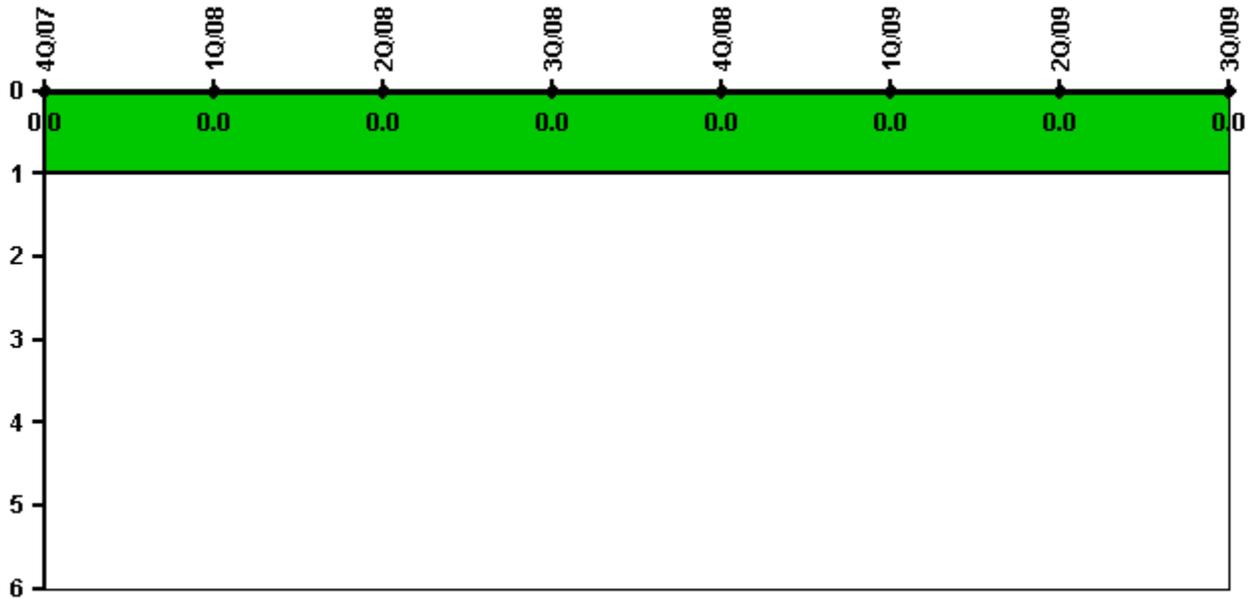
Thresholds: White > 6.0

### Notes

Unplanned Power Changes per 7000 Critical Hrs	4Q/07	1Q/08	2Q/08	3Q/08	4Q/08	1Q/09	2Q/09	3Q/09
Unplanned power changes	0	0	0	0	0	0	0	0
Critical hours	2069.1	2112.0	687.6	2208.0	1673.3	2160.0	2184.0	2208.0
Indicator value	3.3	1.6	1.0	0	0	0	0	0

Licensee Comments: none

# Unplanned Scrams with Complications



Thresholds: White > 1.0

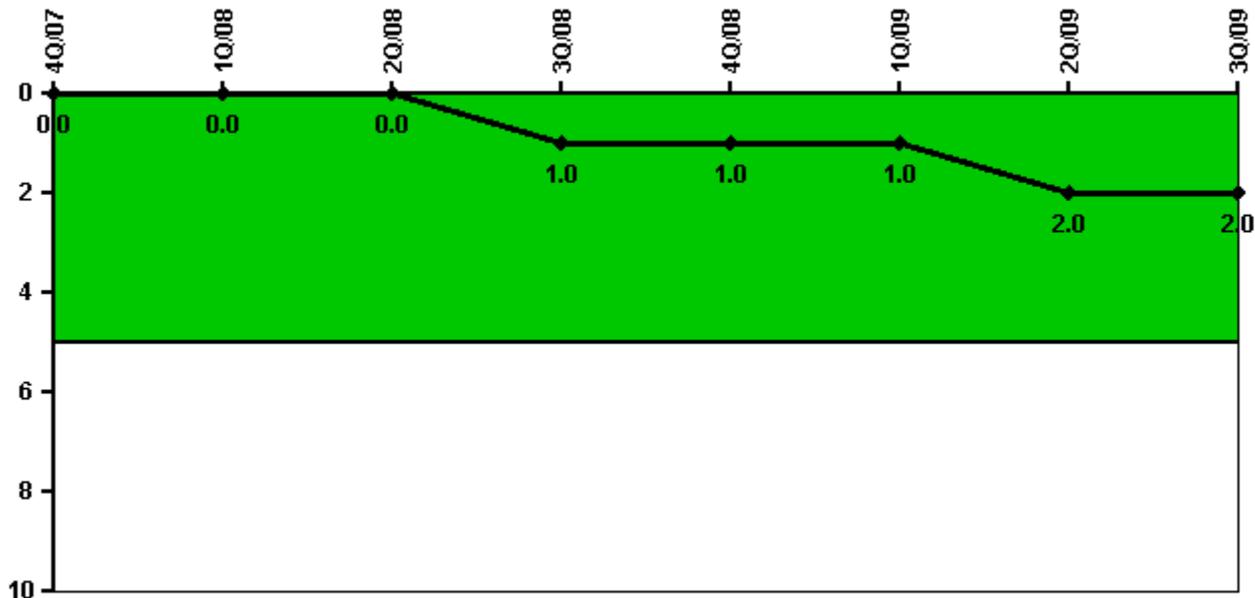
## Notes

Unplanned Scrams with Complications	4Q/07	1Q/08	2Q/08	3Q/08	4Q/08	1Q/09	2Q/09	3Q/09
Scrams with complications	0	0	0	0	0	0	0	0
Indicator value	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Licensee Comments: none

---

## Safety System Functional Failures (PWR)



Thresholds: White > 5.0

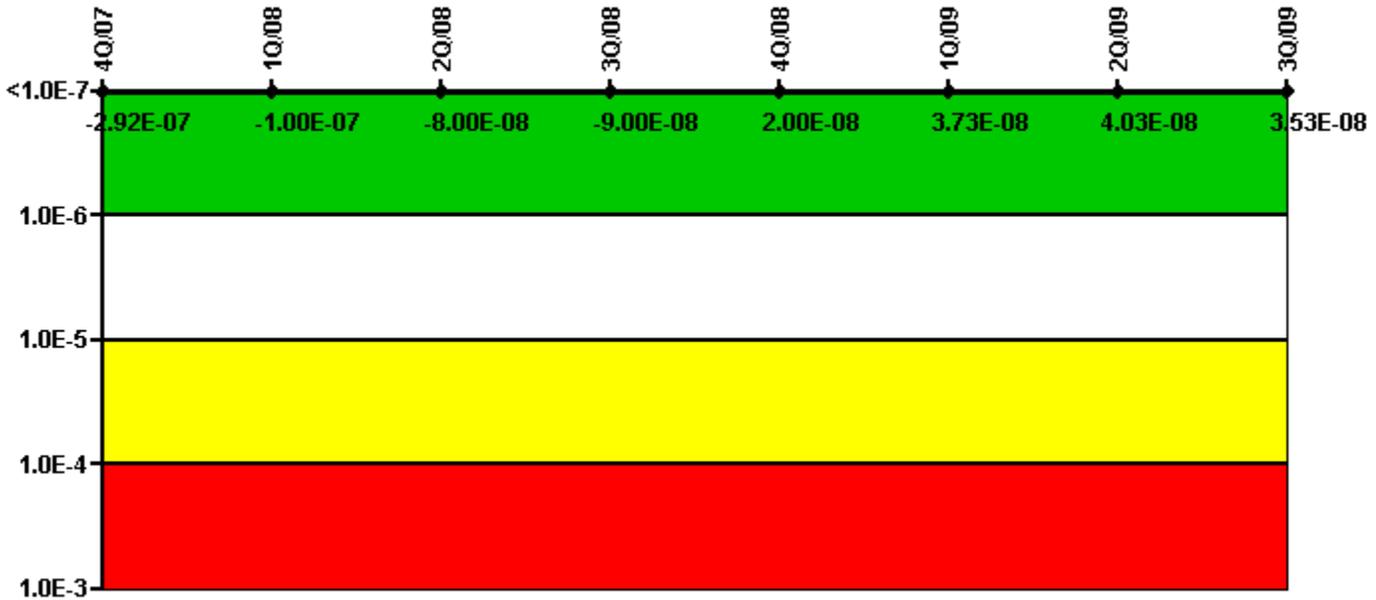
### Notes

Safety System Functional Failures (PWR)	4Q/07	1Q/08	2Q/08	3Q/08	4Q/08	1Q/09	2Q/09	3Q/09
Safety System Functional Failures	0	0	0	1	0	0	1	1
Indicator value	0	0	0	1	1	1	2	2

Licensee Comments:

3Q/09: LER 005-00529/2009-001-00 for Unit 2 B Fuel Oil Transfer Pump failure on the respective emergency diesel generator.

# Mitigating Systems Performance Index, Emergency AC Power System



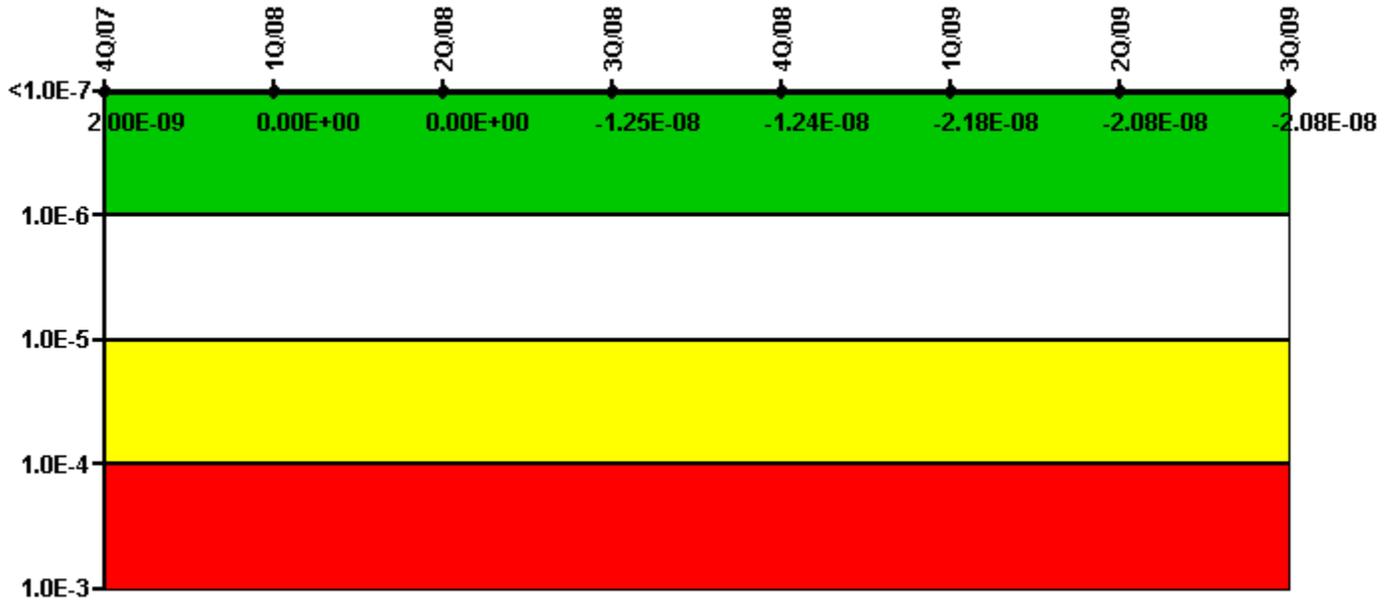
Thresholds: White > 1.00E-6 Yellow > 1.00E-5 Red > 1.00E-4

## Notes

Mitigating Systems Performance Index, Emergency AC Power System	4Q/07	1Q/08	2Q/08	3Q/08	4Q/08	1Q/09	2Q/09	3Q/09
UAI ( $\Delta$ CDF)	7.80E-08	1.20E-07	1.40E-07	1.30E-07	1.60E-07	4.60E-08	4.90E-08	4.40E-08
URI ( $\Delta$ CDF)	-3.70E-07	-2.20E-07	-2.20E-07	-2.20E-07	-1.40E-07	-8.70E-09	-8.70E-09	-8.70E-09
PLE	NO							
Indicator value	-2.92E-07	-1.00E-07	-8.00E-08	-9.00E-08	2.00E-08	3.73E-08	4.03E-08	3.53E-08

Licensee Comments: none

# Mitigating Systems Performance Index, High Pressure Injection System



Thresholds: White > 1.00E-6 Yellow > 1.00E-5 Red > 1.00E-4

## Notes

Mitigating Systems Performance Index, High Pressure Injection System	4Q/07	1Q/08	2Q/08	3Q/08	4Q/08	1Q/09	2Q/09	3Q/09
UAI ( $\Delta$ CDF)	1.70E-08	1.50E-08	1.50E-08	2.50E-09	2.60E-09	1.20E-09	1.20E-09	1.20E-09
URI ( $\Delta$ CDF)	-1.50E-08	-1.50E-08	-1.50E-08	-1.50E-08	-1.50E-08	-2.30E-08	-2.20E-08	-2.20E-08
PLE	NO							
Indicator value	2.00E-09	0.00E+00	0.00E+00	-1.25E-08	-1.24E-08	-2.18E-08	-2.08E-08	-2.08E-08

## Licensee Comments:

3Q/09: During an update of reliability record demand estimates to take effect in the 4th quarter 2009, the station discovered that the manner of input for reliability record demand estimates revised in the 4th quarter 2008 inadvertently changed historical high pressure safety injection and residual heat removal reliability index reported values reported since 2006. The corrected values were submitted in an October 2009 change report. The differences between the results were minor and did not result in a color change.

2Q/09: Added 8.95 hours to June 2007 HPSI "B" planned unavailability in July 2009. No color change since June 2007.

1Q/09: Effective 1st Quarter 2009, MSPI model changes accommodated changes in the PRA model: Diesel generator failure modes have been changed from start and run failures to start, load and run for one hour; and run for greater than one hour; recovery rules associated with AF vs. Alternate Feedwater and those with power recovery for the new DG failure modes are updated; crediting MFW for the full 24-hour mission time, as well as recovering loss of all feedwater with restarting Main Feedwater. Also, unavailability values used in the PRA model were updated with MSPI system unavailability parameters. Finally, estimated valve test demands for the HPSI and RHR systems were adjusted to comply with the changes to testing procedures.

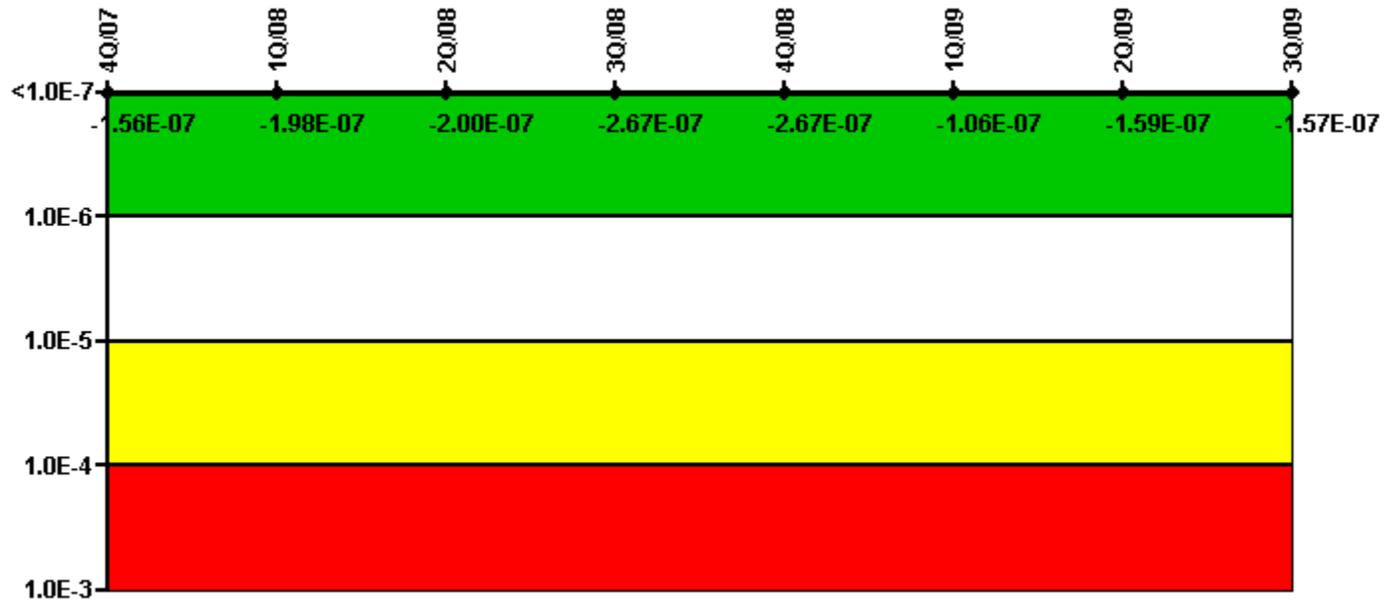
4Q/08: An adverse error was detected in Safety Injection valve group demand estimates. The error was corrected going forward and MSPI model updated. No color change resulted.

4Q/07: The MSPI Model was revised, effective 4 quarter 2007. The model resulted in major shifts in auxiliary

feedwater importance impacting MSPI coefficients.

2Q/07: Added 8.95 hours to June 2007 HPSI "B" planned unavailability in July 2009. No color change.

### Mitigating Systems Performance Index, Heat Removal System



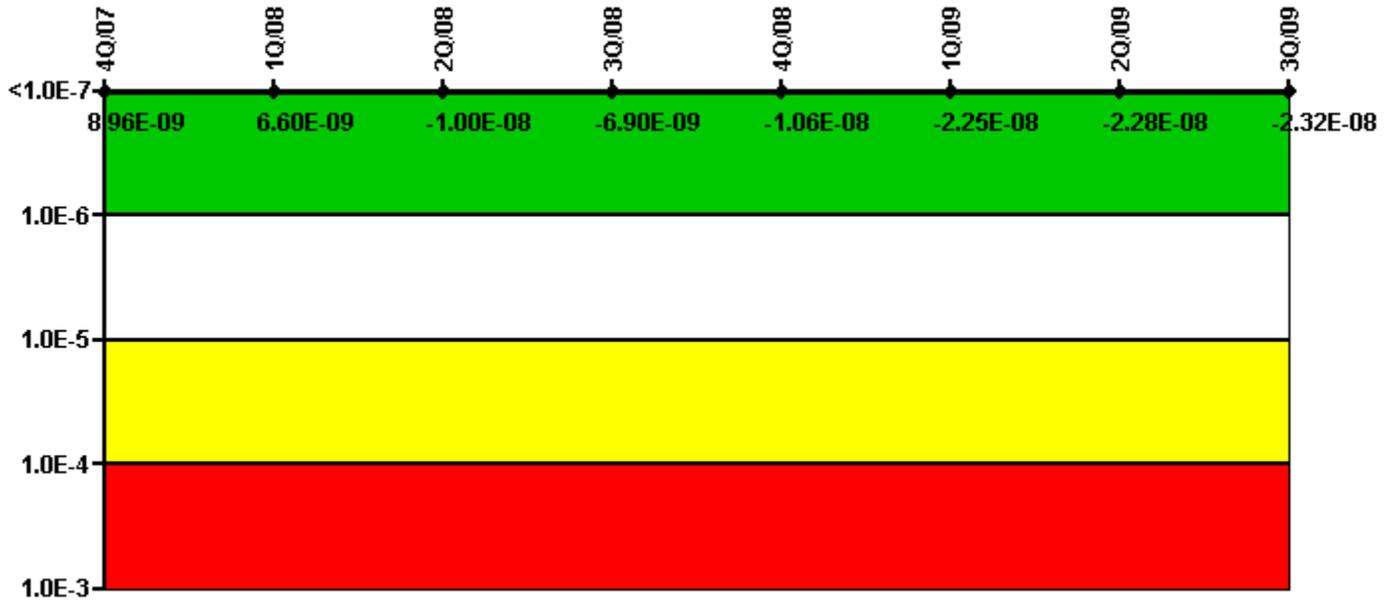
Thresholds: White > 1.00E-6 Yellow > 1.00E-5 Red > 1.00E-4

#### Notes

Mitigating Systems Performance Index, Heat Removal System	4Q/07	1Q/08	2Q/08	3Q/08	4Q/08	1Q/09	2Q/09	3Q/09
UAI ( $\Delta$ CDF)	6.40E-08	2.20E-08	2.00E-08	-4.70E-08	-4.70E-08	-8.90E-09	-6.20E-08	-6.00E-08
URI ( $\Delta$ CDF)	-2.20E-07	-2.20E-07	-2.20E-07	-2.20E-07	-2.20E-07	-9.70E-08	-9.70E-08	-9.70E-08
PLE	NO							
Indicator value	-1.56E-07	-1.98E-07	-2.00E-07	-2.67E-07	-2.67E-07	-1.06E-07	-1.59E-07	-1.57E-07

Licensee Comments: none

# Mitigating Systems Performance Index, Residual Heat Removal System



Thresholds: White > 1.00E-6 Yellow > 1.00E-5 Red > 1.00E-4

## Notes

Mitigating Systems Performance Index, Residual Heat Removal System	4Q/07	1Q/08	2Q/08	3Q/08	4Q/08	1Q/09	2Q/09	3Q/09
UAI ( $\Delta$ CDF)	-4.40E-10	-2.80E-09	-1.00E-09	2.10E-09	-1.60E-09	5.40E-10	1.80E-10	-1.20E-09
URI ( $\Delta$ CDF)	9.40E-09	9.40E-09	-9.00E-09	-9.00E-09	-9.00E-09	-2.30E-08	-2.30E-08	-2.20E-08
PLE	NO							
Indicator value	8.96E-09	6.60E-09	-1.00E-08	-6.90E-09	-1.06E-08	-2.25E-08	-2.28E-08	-2.32E-08

## Licensee Comments:

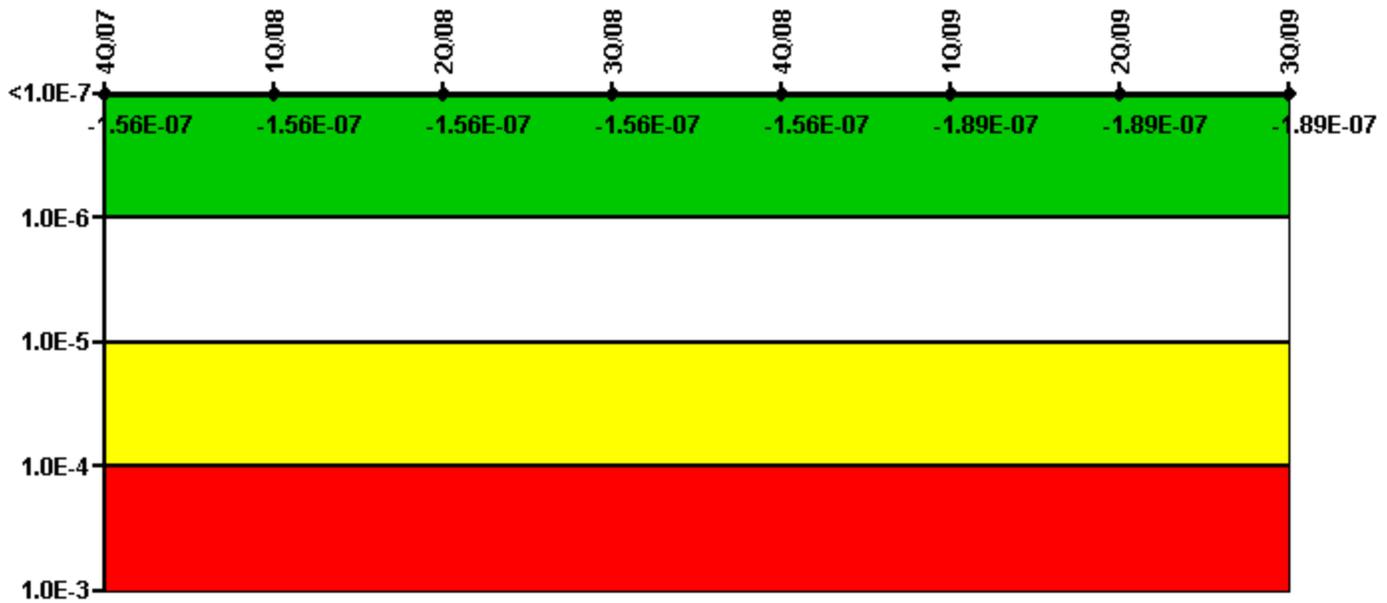
3Q/09: During an update of reliability record demand estimates to take effect in the 4th quarter 2009, the station discovered that the manner of input for reliability record demand estimates revised in the 4th quarter 2008 inadvertently changed historical high pressure safety injection and residual heat removal reliability index reported values reported since 2006. The corrected values were submitted in an October 2009 change report. The differences between the results were minor and did not result in a color change.

1Q/09: Unavailability since April 2006 was revised to include time Containment Spray was unavailable while the Refueling Water Tanks was in full-flow recirculation. LER 05000528/529/530-2009-001. No color change occurred.

4Q/08: An adverse error was detected in Safety Injection valve group demand estimates. The error was corrected going forward and MSPI model updated. No color change resulted.

4Q/07: The MSPI Model was revised, effective 4 quarter 2007. The model resulted in major shifts in auxiliary feedwater importance impacting MSPI coefficients.

## Mitigating Systems Performance Index, Cooling Water Systems



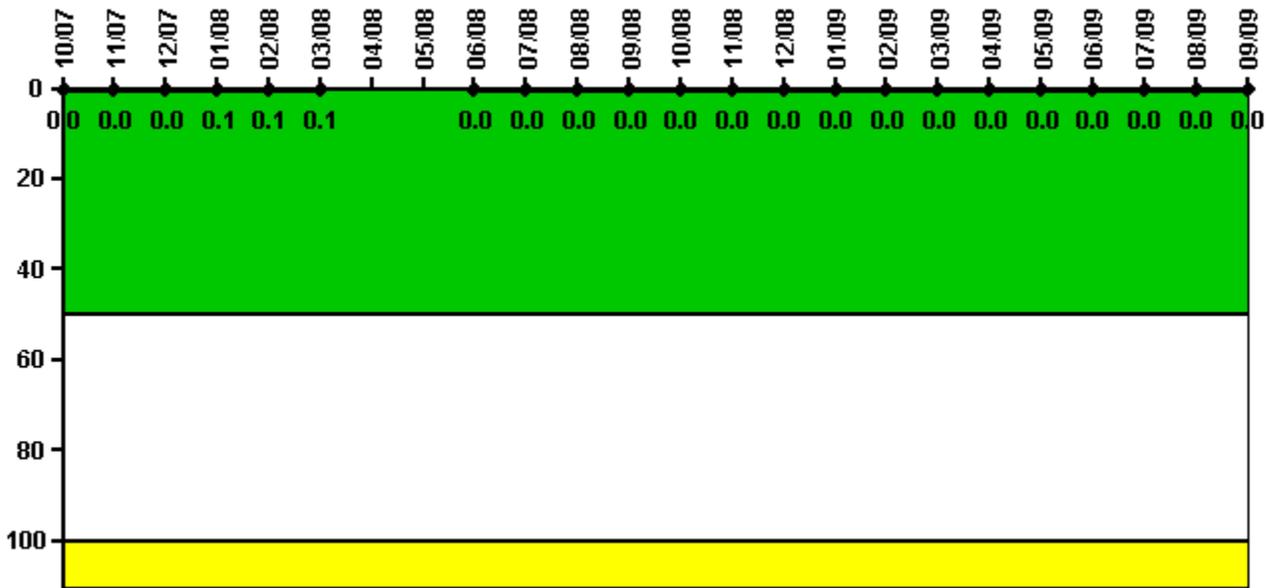
Thresholds: White > 1.00E-6 Yellow > 1.00E-5 Red > 1.00E-4

### Notes

Mitigating Systems Performance Index, Cooling Water Systems	4Q/07	1Q/08	2Q/08	3Q/08	4Q/08	1Q/09	2Q/09	3Q/09
UAI ( $\Delta$ CDF)	4.20E-09	4.20E-09	4.30E-09	4.30E-09	4.30E-09	1.30E-09	1.30E-09	1.30E-09
URI ( $\Delta$ CDF)	-1.60E-07	-1.60E-07	-1.60E-07	-1.60E-07	-1.60E-07	-1.90E-07	-1.90E-07	-1.90E-07
PLE	NO							
Indicator value	-1.56E-07	-1.56E-07	-1.56E-07	-1.56E-07	-1.56E-07	-1.89E-07	-1.89E-07	-1.89E-07

Licensee Comments: none

# Reactor Coolant System Activity



Thresholds: White > 50.0 Yellow > 100.0

## Notes

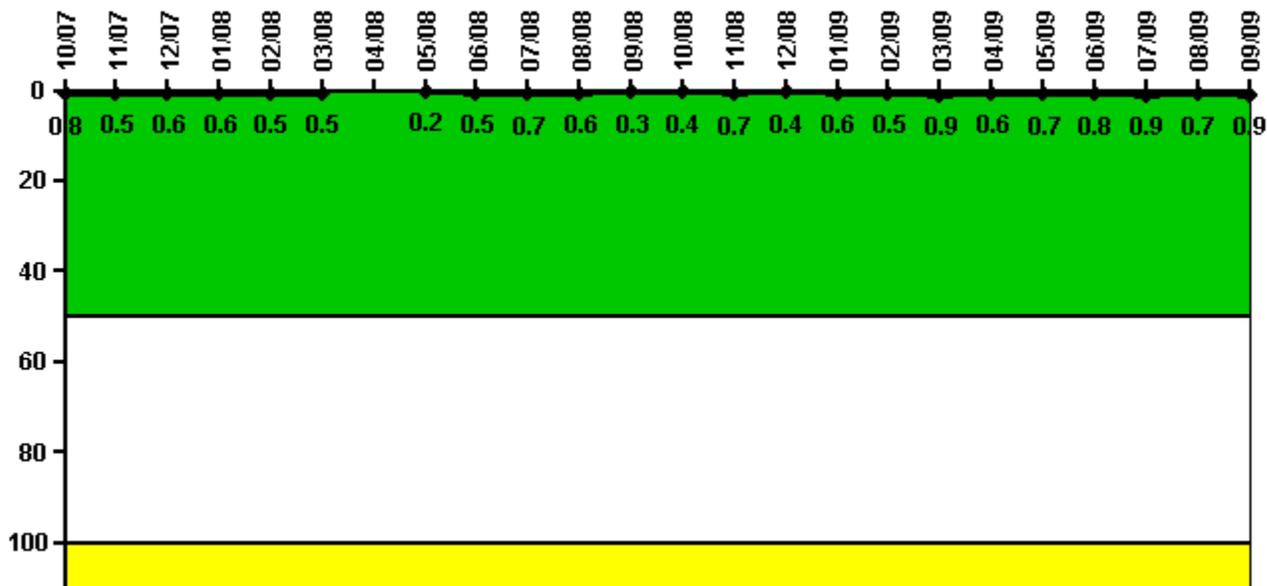
Reactor Coolant System Activity	10/07	11/07	12/07	1/08	2/08	3/08	4/08	5/08	6/08	7/08	8/08	9/08
Maximum activity	0.000484	0.000381	0.000443	0.000563	0.000739	0.000743	N/A	N/A	0.000221	0.000238	0.000238	0.000234
Technical specification limit	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Indicator value	0	0	0	0.1	0.1	0.1	N/A	N/A	0	0	0	0

Reactor Coolant System Activity	10/08	11/08	12/08	1/09	2/09	3/09	4/09	5/09	6/09	7/09	8/09	9/09
Maximum activity	0.000248	0.000250	0.000253	0.000265	0.000267	0.000267	0.000274	0.000276	0.000285	0.000297	0.000295	0.000301
Technical specification limit	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Indicator value	0	0	0	0	0	0	0	0	0	0	0	0

Licensee Comments: none

## Reactor Coolant System Leakage



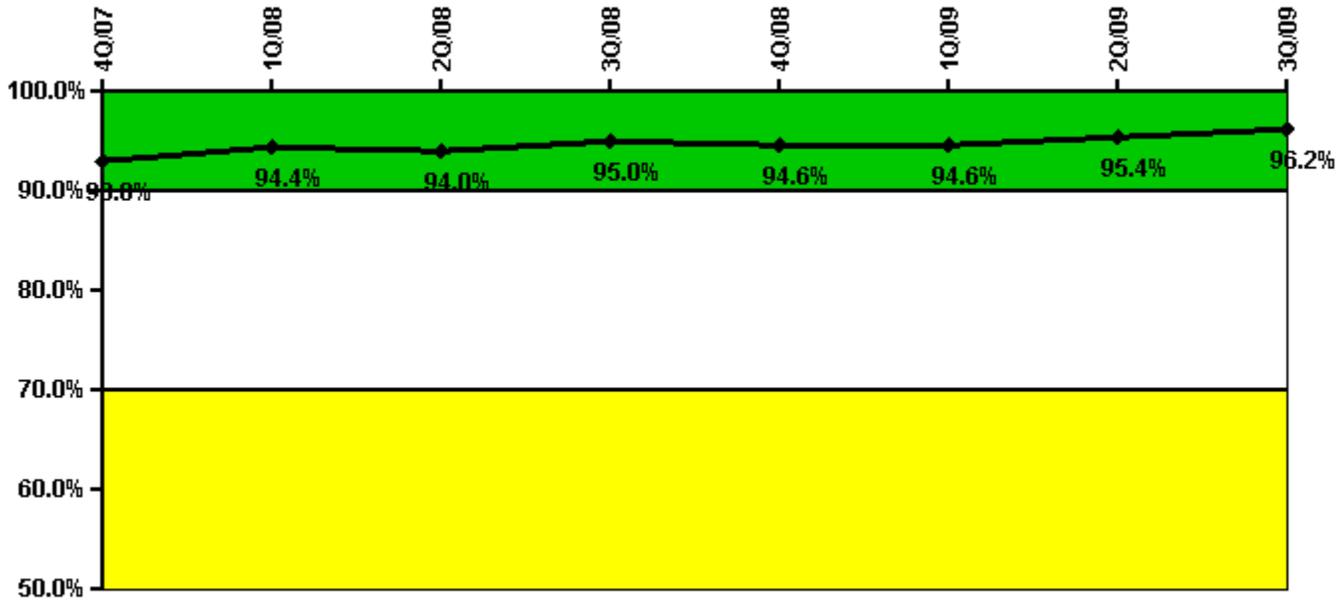
Thresholds: White > 50.0 Yellow > 100.0

### Notes

Reactor Coolant System Leakage	10/07	11/07	12/07	1/08	2/08	3/08	4/08	5/08	6/08	7/08	8/08	9/08
Maximum leakage	0.076	0.048	0.056	0.058	0.049	0.050	N/A	0.021	0.049	0.066	0.059	0.032
Technical specification limit	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Indicator value	0.8	0.5	0.6	0.6	0.5	0.5	N/A	0.2	0.5	0.7	0.6	0.3
Reactor Coolant System Leakage	10/08	11/08	12/08	1/09	2/09	3/09	4/09	5/09	6/09	7/09	8/09	9/09
Maximum leakage	0.044	0.065	0.043	0.058	0.052	0.085	0.063	0.065	0.084	0.085	0.069	0.087
Technical specification limit	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Indicator value	0.4	0.7	0.4	0.6	0.5	0.9	0.6	0.7	0.8	0.9	0.7	0.9

Licensee Comments: none

## Drill/Exercise Performance



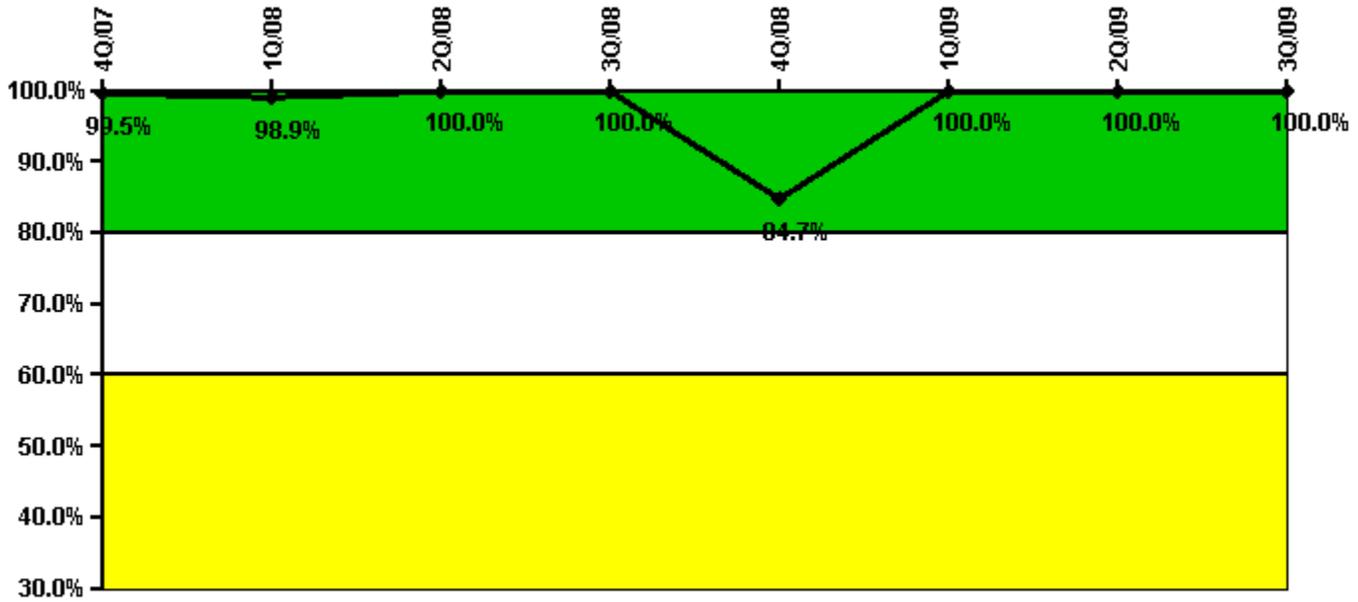
Thresholds: White < 90.0% Yellow < 70.0%

### Notes

Drill/Exercise Performance	4Q/07	1Q/08	2Q/08	3Q/08	4Q/08	1Q/09	2Q/09	3Q/09
Successful opportunities	12.0	129.0	35.0	43.0	35.0	75.0	109.0	49.0
Total opportunities	12.0	132.0	39.0	43.0	39.0	79.0	112.0	50.0
Indicator value	93.0%	94.4%	94.0%	95.0%	94.6%	94.6%	95.4%	96.2%

Licensee Comments: none

## ERO Drill Participation



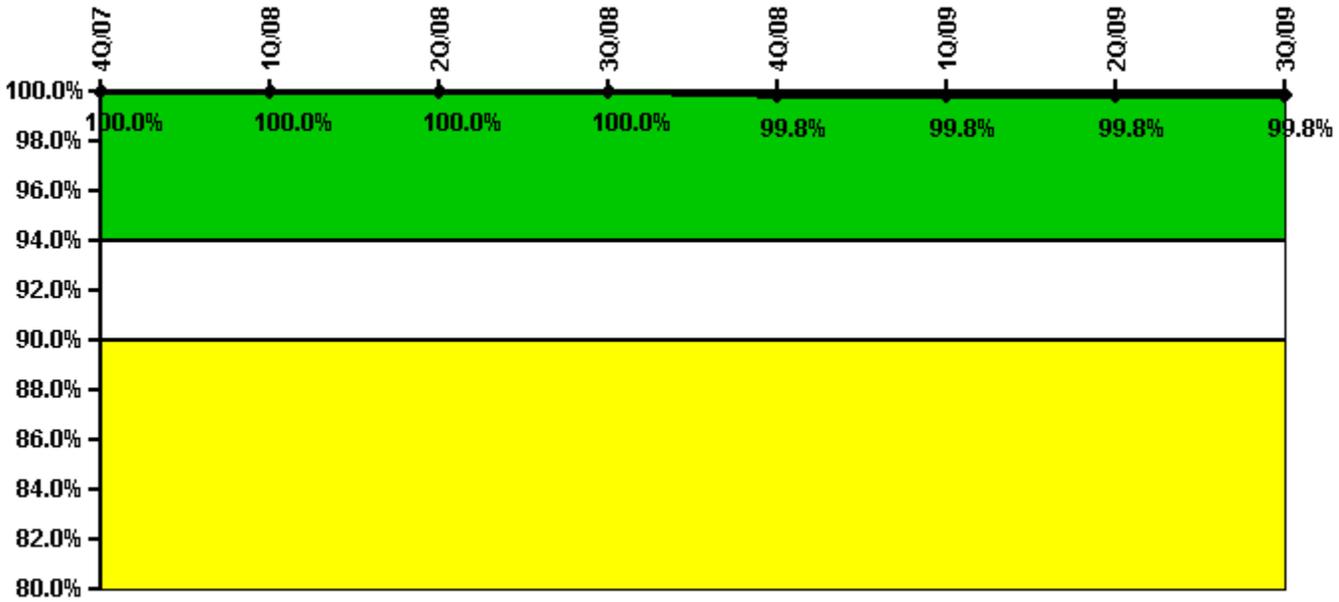
Thresholds: White < 80.0% Yellow < 60.0%

### Notes

ERO Drill Participation	4Q/07	1Q/08	2Q/08	3Q/08	4Q/08	1Q/09	2Q/09	3Q/09
Participating Key personnel	192.0	188.0	191.0	183.0	72.0	78.0	87.0	95.0
Total Key personnel	193.0	190.0	191.0	183.0	85.0	78.0	87.0	95.0
Indicator value	99.5%	98.9%	100.0%	100.0%	84.7%	100.0%	100.0%	100.0%

Licensee Comments: none

# Alert & Notification System



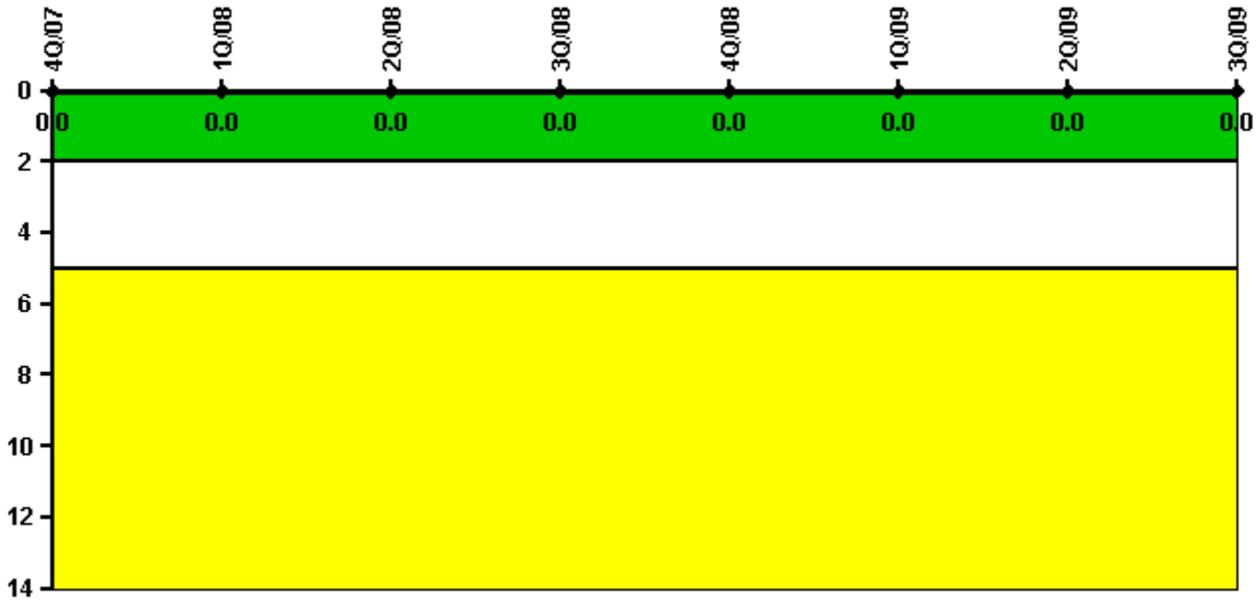
Thresholds: White < 94.0% Yellow < 90.0%

## Notes

Alert & Notification System	4Q/07	1Q/08	2Q/08	3Q/08	4Q/08	1Q/09	2Q/09	3Q/09
Successful siren-tests	882	296	296	296	331	296	296	296
Total sirens-tests	882	296	296	296	333	296	296	296
Indicator value	100.0%	100.0%	100.0%	100.0%	99.8%	99.8%	99.8%	99.8%

Licensee Comments: none

# Occupational Exposure Control Effectiveness



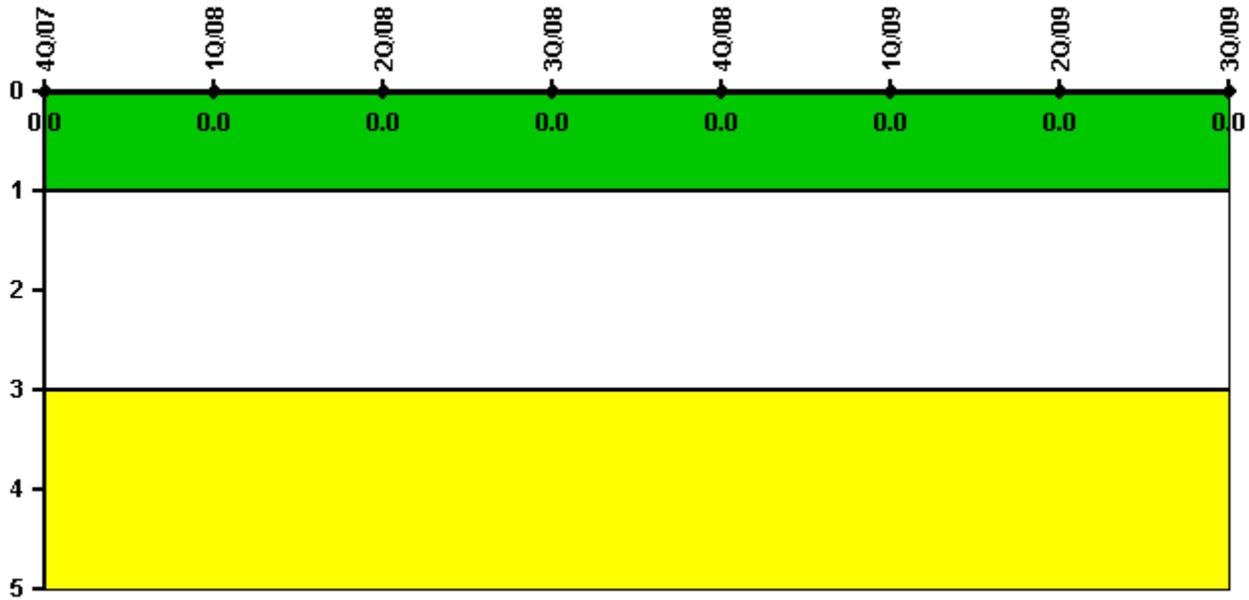
Thresholds: White > 2.0 Yellow > 5.0

## Notes

Occupational Exposure Control Effectiveness	4Q/07	1Q/08	2Q/08	3Q/08	4Q/08	1Q/09	2Q/09	3Q/09
High radiation area occurrences	0	0	0	0	0	0	0	0
Very high radiation area occurrences	0	0	0	0	0	0	0	0
Unintended exposure occurrences	0	0	0	0	0	0	0	0
<b>Indicator value</b>	<b>0</b>							

Licensee Comments: none

# RETS/ODCM Radiological Effluent



Thresholds: White > 1.0 Yellow > 3.0

## Notes

RETS/ODCM Radiological Effluent	4Q/07	1Q/08	2Q/08	3Q/08	4Q/08	1Q/09	2Q/09	3Q/09
RETS/ODCM occurrences	0	0	0	0	0	0	0	0
Indicator value	0	0	0	0	0	0	0	0

Licensee Comments: none

[Security](#) information not publicly available.